REMARKS

Applicant respectfully requests reconsideration and allowance of the subject Application. Claims 1-47 were originally filed. Claims 1-47 are cancelled without prejudice or disclaimer. Claims 48-56 are newly added to more definitely claim the subject invention and are directed to the same invention as previously claimed and examined. Support for the foregoing amendments can be found in the original specification, claims, and drawings – no new matter has been introduced. Accordingly, Claims 48-56 are pending as listed above.

It is also noted that the claims filed with this RCE are not in excess of the number of claims previously paid for; and therefore Applicant does not have to file additional claim fees.

35 U.S.C. § 102 CLAIM REJECTION

Claims 1-47 were rejected under 35 U.S.C. § 102(e) as being anticipated by U.S. Patent No. 6,212,406 to Keskitalo et al. (hereinafter, "Keskitalo"). Applicant has cancelled claims 1-47 without prejudice, and believes the rejection is now rendered moot in lieu of newly added **Claims 48-56**.

Newly added Claim 48 recites a method for continuously updating spreading codes assigned to wireless terminals in a CDMA wireless communication system. The method recites the operational acts of iteratively identifying a wireless terminal "having a signal to interference-plus-noise ratio below a predetermined threshold" and assigning "a new spreading code to the target wireless terminal . . . by searching for an optimal signal signature corresponding to the new spreading code so as to reduce signal interference between the wireless terminals when in reverse link communication with a base station."

Newly added Claim 54 recites a method for assigning spreading codes to wireless terminals. Claim 54 is similar to claim 48 but includes the further act of "estimating propagation characteristics of at least one channel used to communicate from at least one of the wireless terminals to a base station in a reverse link of the CDMA wireless communication system" and "assigning spreading codes to the wireless terminals based on the estimated propagation characteristics of the at least one channel."

Newly added Claims 55 and 56 recite different variations of implementing the claimed invention described in Claim 54, such as in the form of a system or apparatus.

Keskitalo does not describe how to reduce mutual interference between wireless users in a CDMA system when in reverse link communication with a base station. For example, Keskitalo fails to disclose identifying the wireless terminal with a signal to interference-plus-noise ratio below a predetermined threshold and on an iterative basis. Keskitalo also fails to disclose assigning a new spreading code to the identified wireless terminal. Nor does Keskitalo describe how to search for an optimal signal signature corresponding to the new spreading code to assign to the wireless terminal, as recited in newly added Claims 48-56.

Keskitalo does mention a desire for selecting "spreading codes" that are "mutually orthogonal" in the Background of the Invention section (Col. 1, lines 45-51), but Keskitalo accomplishes this goal by physically "deflecting" the angle of the greatest gain of the antenna beams in a desired direction. See, e.g., Abstract, and the "Brief Summary of the Invention." Hence, Keskitalo does not remotely describe any methodology, system, or apparatus similar to that recited in

independent Claims 48, 54, 55, 56, of updating/assigning the spreading codes for wireless terminals, in the reverse link of a CDMA system, on an iterative basis.

Accordingly, Keskitalo does not anticipate independent Claims 48-56, and the § 102(e) rejection with respect to Keskitalo is rendered moot by Applicant's Claim amendments. Dependent **Claims 49-53** are allowable by virtue of their dependency upon Claim 48.

35 U.S.C. § 103 CLAIM REJECTION

Claims 1-47 were rejected under 35 U.S.C. § 103(a) as being unpatentable over several combinations of references including Keskitalo in view of U.S. Patent No. 6,163,524 to Magnusson et al. (hereinafter "Magnusson"), in further view of U.S. Patent No. 5,764,687 to Easton (hereinafter "Easton"), and in further view of U.S. Patent No. 5,831,977 to Dent (hereinafter "Dent"). Applicant has cancelled claims 1-47 without prejudice, and believes the 103 rejection is now rendered moot in lieu of newly added **Claims 48-56**.

CLAIMED INVENTION

Newly added claims 48 and 54-56 are directed to the assignment of spreading codes to wireless units to reduce mutual interference among wireless units when communicating with a base station in a reverse link of a CDMA system. The inventors realized that it is possible to achieve optimal performance with as little interference between wireless units, by applying a methodology which iteratively searches for the wireless unit with a signal to interference-plus-noise ratio below a certain threshold and reassigns its spreading code to move its signature in a signal space away from other wireless units. Then a next wireless unit below the threshold (such as the worst performing wireless device) is chosen and the process repeats. This repetitive process eventually distributes the

signature vectors in signal space for each wireless unit an equal distance a part from each other (i.e., it spreads each signal apart and reduces mutual interference among wireless units). Thus the innovative methodology improves performance and increases system capacity of a CDMA system, since most CDMA systems are usually interference-limited.

REFERENCES

The Office cites Keskitalo, Magnusson, Easton, and Dent in its § 103 rejection of previously filed Claims 1-47. As described above Keskitalo is directed to steering transmission antenna beams and deflection of beams. See, Keskitalo, Summary of the Invention section. Keskitalo is particularly devoid of any explanation of how spreading codes are assigned and reassigned to wireless units on an iterative basis as recited in Applicant's New Claims 48-56.

Magnusson is directed to a methodology for allocating and reallocating spreading codes by searching for codes based on requested communication channel bandwidths. (Magnusson, Summary). A "code tree structure" is used to assisting in searching for spreading codes corresponding to the requested bandwidth. Magnusson is primarily concerned with bandwidth capacity and is not concerned with optimizing interference between users. Magnusson does teach or suggest any method of iteratively repetitively reassigning spreading codes to wireless terminals with signal to interference-plus-noise ratio below a predetermined threshold as recited in Applicant's claims.

Easton describes a demodulator system used for fabricating a DSP chip or integrated circuit. Nothing in Eaton remotely appears to teach or suggest anything related to the innovative features described in Applicant's Claims 48-56.

Finally, Dent describes assigning "access codes" to mobiles in order of decreasing signal strength for purposes of decoding signals received from wireless devices at a base station. Dent, Col. 4, lines 1-25. In other words, the access codes are assigned to signals and are used by the system for processing after the signals are received by the base station. Dents is concerned with demodulation and not signal interference between wireless devices.

Applicant's newly added independent Claim 48 recites:

> A method for updating spreading codes assigned to wireless terminals in a CDMA wireless communication system, comprising:
> (a)　identifying a target wireless terminal having a signal to interference-plus-noise ratio below a predetermined threshold;
> (b)　assigning a new spreading code to the target wireless terminal identified in paragraph (a), by searching for an optimal signal signature corresponding to the new spreading code so as to reduce signal interference between the wireless terminals when in reverse link communication with a base station;
> (c)　forwarding the new spreading code to the target wireless terminal identified in paragraph (a); and
> (d)　repeating operational acts specified in paragraphs (a), (b), and (c) on an iterative basis.

This newly added claim is representative of the technique used to reduce interference between wireless devices when communicating the reverse link. As described above, the cited references do not teach or suggest this method either singularly or in combination. There is simply no discussion in either Keskitalo, Magnusson, Easton, and/or Dent of assigning spreading codes to wireless units to reduce mutual interference among wireless units in the manner recited in Claim 48 or any of the other independent claims. Accordingly, there would be no

motivation to combine Keskitalo, Magnusson, Easton, and/or Dent, to arrive at Claims 48-56.

Accordingly, for all the reasons described above, the combination fails to teach or suggest newly presented independent Claims 48, 54, 55, or 56. Applicant respectfully requests that the § 103 rejection be withdrawn.
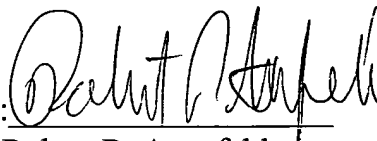
Claims 49-53 depend from Claim 48 and are allowable by virtue of this dependency. Additionally, these claims recite additional features that, when taken together with those of Claim 48, define methods that are not taught or suggested by the Keskitalo/Magnusson/Easton/Dent combination.
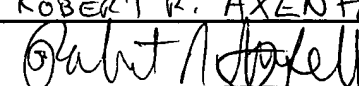
Conclusion

Pending Claims 48-53 are in condition for allowance. Applicant respectfully requests reconsideration and issuance of the subject application. If any issues remain that preclude issuance of this application, the Examiner is urged to contact the undersigned attorney before issuing a subsequent Action.

Respectfully Submitted,

Dated: 6/9/05

By: _[signature]_

Robert R. Axenfeld
Reg. No. 37,276

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